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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/780,962

02/18/2004

Gerard Francis McLean

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1684

21186

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07/09/2008

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.

P.O. BOX 2938

MINNEAPOLIS, MN 55402

EXAMINER

TALBOT, BRIAN K

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/780,962	<b>Applicant(s)</b> MCLEAN ET AL.	
	<b>Examiner</b> Brian K. Talbot	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/4/08.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. The amendment filed 4/4/08 has been considered and entered. Claims 1-52 remain in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In light of the amendment filed 4/4/08, the 35 USC 112 second paragraph rejections have been withdrawn. The replacement drawings have been received and entered.

***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1-4,9-14,19-23,28-34 and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable Wilkinson et al. (5,252,410) in combination with JP '291.

Wilkinson et al. (5,252,410) teaches a fuel cell membrane electrode assembly with integral reactant flow passages. The fuel cell includes electrodes and separators whereby the electrodes have passages or interstitial spaces such as grooves formed therein. An ion exchange membrane, i.e. electrolyte, is placed between the electrodes (abstract).

Wilkinson et al. (5,252,410) fails to teach the claimed electrolyte composition including PFSI with a monomer and a cross-linking agent having at least two vinyl functionalities.

JP '291 discloses a perfluorocarbon polymer having sulfonic acid groups (e.g. a PFSI) which is mixed with at least one monomer and a divinyl benzene crosslinking agent (abstract). The PFSI above comprises sulfonic acid groups and the cross-linking agent is divinyl benzene (as applied to claims 6-8).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Wilkinson et al. (5,252,410) electrolyte by substituting the ion exchange membrane, i.e. electrolyte as evidenced by JP '291 with the expectation of achieving similar success.

Claims 5,15,24,38 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (5,252,410) in combination with JP '291 as applied above further in view of Singleton (5,425,687).

Wilkinson et al. (5,252,410) in combination with JP '291 fails to clearly require the presence of an initiator in the electrolyte.

Singleton (5,425,687) is drawn to cross-linking of various ion exchange membranes wherein the mixture includes a cross-linker such as divinyl benzene (col. 5, lines 35-40). The mixture further can include an initiator (paragraph bridging columns 5 and 6).

The motivation for using an initiator would have been readily apparent to the ordinary worker in the art so as to initiate the cross-linking.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of Wilkinson et al. (5,252,410) in combination with JP '291 by using an initiator since it would have provided the predictable result of initiating cross-linking. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945) See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

Claims 8,18,27,36,37,45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (5,252,410) in combination with JP '291 as applied to claim 1 above further in view of Singleton (5,425,687) and Kiefer (2005/0147859).

Wilkinson et al. (5,252,410) in combination with JP '291 fails to teach incorporating an elasticizing vinyl monomer agent in the electrolyte.

Singleton (5,425,687) is drawn to cross-linking of various ion exchange membranes wherein the mixture includes a cross-linker such as divinyl benzene (col. 5, ll. 35-40). The mixture further includes the presence of vinyl monomer in the mixture (col. 4, ll. 36-62).

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Kiefer (2005/0147859) teaches of the desire to mix a proton conducting polymer with vinyl-containing phosphonic acids (abstract) to obtain a membrane having outstanding chemical and thermal properties. The claimed elasticizing compound is a vinyl monomer, i.e. acrylonitrile.

Since the teachings of Kiefer (2005/0147859) and Singleton (5,425,687) suggest using vinyl monomers in the mixture, there is a reasonable expectation that the combination above already having a vinyl monomer present in the mixture will function as the claimed elasticizing element absent clear evidence to the contrary and since the mixture already employs a vinyl monomer and said vinyl monomer being the same as the generically claimed and generically disclosed vinyl monomer will provide some degree of elasticity.

Claims 6,7,16,17,25,26,35,39,40,44 and 48-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilkinson et al. (5,252,410) in combination with JP '291 as applied above further in combination with Kang et al. (6,727,024).

Wilkinson et al. (5,252,410) in combination with JP '291 as applied above fails to teach adding a solvent and curing the electrolyte composition by heating or electron bombardment.

Kang et al. (6,727,024) teaches a solid polymer electrolyte whereby the polymer electrolyte includes a solvent (col. 5, lines 25-67) and the electrolyte is cured by irradiation with UV, e-beam or gamma rays as well as with a heat source (col. 7, lines 54-65).

Therefore it would have been obvious for one skilled in the art at the time the invention was made to have modified Wilkinson et al. (5,252,410) in combination with JP '291 process by

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including a solvent and curing by e-beam or a heat source as evidenced by Kang et al.

(6,727,024) with the expectation of achieving similar results, i.e. a cured electrolyte.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 8AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Brian K Talbot/  
Primary Examiner, Art Unit 1792

BKT

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